

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2 (cancelled).

3 (currently amended). ~~A method for detecting duplicate images comprising the steps of:~~

~~providing at least two images of an original scene captured at determinable times by a photographic camera, where the camera records a time of camera capture of the original scene;~~

~~computing an indication of image content for each image;~~

~~determining the time of camera capture of each of the images; and~~

~~evaluating the indication of image content and the time of camera capture to determine whether the images are duplicate images;~~

~~wherein the step of computing an indication of image content comprises:~~

~~dividing each image into blocks; and~~

~~computing an indication of image content in each block; and~~

The method of Claim 30 wherein each image is divided into 4x4 or 3x3 blocks.

4 (original). The method as claimed in claim 3 wherein each image is divided into 3x3 blocks.

5 (previously presented). The method as claimed in claim 3 wherein the step of computing an indication of image content in each block comprises computing a histogram for each block.

6 (currently amended). The method as claimed in claim 5 wherein ~~the step of evaluating the indication of image content and the time of camera capture comprises comparing one or more blocks of one image, using a histogram intersection metric, to corresponding blocks of another image and~~ the similarity

metrics are histogram intersection metrics and said evaluating of the time of original capture further comprises using the time difference between capture of the two images to determine whether the images are duplicate images.

7 (cancelled).

8 (original). A method for detecting duplicate images comprising the steps of:

- (a) providing a plurality of images captured at determinable times;
- (b) dividing each image into an X number of blocks, wherein one or more blocks represent a central area and a foreground area;
- (c) computing histograms for each block of each image, and block histogram intersection values obtained from comparisons between histograms from corresponding blocks from each image;
- (d) determining whether each block histogram intersection value for at least those blocks surrounding the central area is higher than a threshold T_1 , and determining whether the number of intersection values below the threshold T_1 are not greater than a certain number N;
- (e) computing an average histogram intersection value of the foreground area, and determining whether the average block histogram intersection value of the foreground area is not lower than a threshold T_2 ;
- (f) determining whether the average histogram intersection value of the foreground is higher than a threshold T_3 ;
- (g) determining whether an average of the X number of block histogram intersection values is higher than a threshold T_4 ;
- (h) determining whether the average of the X number of block histogram intersection values is higher than a threshold T_5 ;
- (i) determining whether the time difference between capture of the images is less than a threshold T_6 ;
- (j) determining whether the average of the X number of block histogram intersection values is higher than a threshold T_7 ; and
- (k) determining whether the time difference between the capture of the images is less than a threshold T_8 ; and

(l) utilizing the determinations made in steps (d) through (k) to determine if any of the images are duplicates.

9 (original). The method as recited in claim 8 wherein said step (h) further provides that $T_5 < T_4$.

10 (original). The method as recited in claim 8 wherein said step (j) further provides that $T_5 < T_4 < T_7$.

11 (original). The method as recited in claim 8 wherein said step (k) further provides that $T_6 < T_8$.

12 (original). The method as recited in claim 8 wherein said step (b) comprises dividing each image into a configuration of 4x4 or fewer blocks.

13 (original). The method as recited in claim 12 wherein said step (b) comprises dividing each image into a configuration of 3x3 blocks.

14 (original). A method for detecting duplicate images comprising the steps of:

- (a) providing a plurality of images;
- (b) dividing each image into an X number of blocks, wherein one or more blocks represent a central area and a foreground area;
- (c) computing histograms for each block, and block histogram intersection values obtained from comparisons between histograms from corresponding blocks from each image;
- (d) determining whether each block histogram intersection value for at least those blocks surrounding the center block is higher than a threshold T_1 , and determining whether the number of intersection values below the threshold T_1 are not greater than a certain number N;
- (e) computing an average histogram intersection value of the foreground area, and determining whether the average block histogram intersection value of the foreground area is not lower than a threshold T_2 ;

(f) determining whether the average histogram intersection value of the foreground is higher than a threshold T_3 ;

(g) determining whether an average of the X number of block histogram intersection values is higher than a threshold T_4 ;

(h) determining whether the average of the X number of block histogram intersection values is higher than a threshold T_5 ; and

(i) utilizing the determinations made in steps (d) through (h) to determine if any of the images are duplicates.

15 (original). The method as recited in claim 14 wherein said step (h) further provides that $T_5 < T_4$.

16 (original). The method as recited in claim 14 wherein said step (b) comprises dividing each image into a configuration of 4x4 or fewer blocks.

17 (original). The method as recited in claim 16 wherein said step (b) comprises dividing each image into a configuration of 3x3 blocks.

18-19 (cancelled).

20 (currently amended). The computer program product as claimed in claim 34 ~~A computer program product for detecting duplicate images comprising: a computer readable storage medium having a computer program stored thereon for performing the steps of:~~

~~providing at least two images of an original scene captured at determinable times by a photographic camera, where the camera records a time of camera capture of the original scene;~~

~~computing an indication of image content for each image;~~

~~determining the time of camera capture of each of the images; and~~

~~evaluating the indication of image content and the time of camera capture to determine whether the images are duplicate images;~~

~~wherein the step of computing an indication of image content comprises:~~

~~dividing each image into blocks; and~~

~~computing an indication of image content in each block; and~~
wherein each image is divided into 4x4 or 3x3 blocks.

21 (original). The computer program product as claimed in claim 20 wherein each image is divided into 3x3 blocks.

22 (previously presented). The computer program product as claimed in claim 20 wherein the step of computing an indication of image content in each block comprises computing a histogram for each block.

23 (currently amended). The computer program product as claimed in claim 22 wherein ~~the step of evaluating the indication of image content and the time of camera capture comprises comparing one or more blocks of one image, using a histogram intersection metric, to corresponding blocks of another image and~~ the similarity metrics are histogram intersection metrics and said evaluating of the time of original capture further comprises using the time difference between capture of the two images to determine whether the images are duplicate images.

24-25 (cancelled).

26 (previously presented). The method as claimed in claim 33 wherein the time of original capture is determined by extracting encoded time information from a film strip used to capture images of the original scene.

27 (previously presented). The method as claimed in claim 33 wherein the time of original capture is determined by extracting encoded time information from images provided by a digital camera.

28 (previously presented). The method as claimed in claim 33 further comprising the step of generating an average of the similarity metrics for the blocks and the step of evaluating the similarity metric comprises evaluating the average of the similarity metrics and the time of capture to determine whether the images are duplicate images.

29 (cancelled).

30 (currently amended). A method for detecting duplicate images comprising the steps of:

providing at least two images originally captured by a photographic camera at determinable times from original scenes;

computing an indication of image content for each image by dividing each image into blocks, computing an indication of image content in each block, and comparing the computed indication of image content in each corresponding block for the two images to generate a similarity metric for each block;

determining the time of original capture of each of the images; and

evaluating the similarity ~~metric for each block~~ metrics and the time of original capture to determine whether the images are duplicate images;

wherein the step of computing an indication of image content further comprises assigning two or more predetermined blocks to represent a foreground area of the images, and computing an indication of image content in each block and in the foreground areas of each image to generate a similarity metric for the foreground areas.

31 (currently amended). ~~The method as claimed in claim 6~~ A method for detecting duplicate images comprising the steps of:

providing at least two images of an original scene captured at determinable times by a photographic camera, where the camera records a time of camera capture of the original scene;

computing an indication of image content for each image,
including:

dividing each image into blocks; and

computing a histogram for each block;

determining the time of camera capture of each of the images; and

evaluating the indication of image content and the time of camera capture to determine whether the images are duplicate images;

wherein the step of evaluating the indication of image content and the time of camera capture comprises comparing one or more blocks of one

image, using a histogram intersection metric, to corresponding blocks of another image and using the time difference between capture of the two images to determine whether the images are duplicate images; and wherein the histogram intersection metric has the formula:

$$Inter(R, C) = \frac{\sum_{i=1}^n \min(R_i, C_i)}{\sum_{i=1}^n R_i}$$

where R is the histogram of a reference, C is the histogram of a candidate, and n is the number of bins.

32 (cancelled).

33 (previously presented). A method for detecting duplicate images comprising the steps of:

providing at least two images originally captured by a photographic camera at determinable times from original scenes;

computing an indication of image content for each image by dividing each image into blocks, computing an indication of image content in each block, and comparing the computed indication of image content in each corresponding block for the two images to generate a similarity metric for each block;

determining the time of original capture of each of the images; and evaluating the similarity metric for each block and the time of original capture to determine whether the images are duplicate images;

wherein the step of evaluating the similarity metric for each block and the time of capture comprises comparing one or more blocks of one image, using a histogram intersection metric, $Inter(R, C)$, to corresponding blocks of another image and using the time difference between capture of the two images to determine whether the images are duplicate images;

wherein:

$$Inter(R, C) = \frac{\sum_{i=1}^n \min(R_i, C_i)}{\sum_{i=1}^n R_i}$$

where $Inter(R, C)$ is the histogram intersection metric, R is the histogram of a reference, C is the histogram of a candidate, and n is the number of bins.

34 (new) A computer program product for detecting duplicate images comprising: a computer readable storage medium having a computer program stored thereon for performing the steps of:

providing at least two images originally captured by a photographic camera at determinable times from original scenes;

computing an indication of image content for each image by dividing each image into blocks, computing an indication of image content in each block, and comparing the computed indication of image content in each corresponding block for the two images to generate a similarity metric for each block;

determining the time of original capture of each of the images; and evaluating the similarity metrics and the time of original capture to determine whether the images are duplicate images;

wherein the step of computing an indication of image content further comprises assigning two or more predetermined blocks to represent a foreground area of the images, and computing an indication of image content in each block and in the foreground areas of each image to generate a similarity metric for the foreground areas.